INDIANA DEPARTMENT OF TRANSPORTATION
OFFICE OF MATERIALS MANAGEMENT

PROCEDURE FOR BENCH TESTING, FIELD TESTING, AND APPROVAL LIST REQUIREMENTS FOR WIRELESS VEHICLE DETECTION SYSTEMS (WVDS)
ITM No. 954-10P

1.0 SCOPE.

1.1 This test procedure covers the methods that a wireless vehicle detection system (WVDS) is bench tested, evaluated in the field, and is placed, maintained, or removed from an approval list.

1.2 The values stated in either English or acceptable SI metric units are to be regarded separately as standard, as appropriate for a specification with which this ITM is used. Within the text, SI metric units are shown in parentheses. The values stated in each system may not be exact equivalents; therefore each system shall be used independently of the other, without combining values in any way.

1.3 This ITM may involve hazardous materials, operations, and equipment. This ITM does not purport to address all of the safety problems associated with the ITM's use. The ITM user's responsibility is to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2.0 REFERENCES.

2.1 ITM Standards.

934 Procedure for Evaluating Vehicle Detection Performance

2.2 NEMA Standards.

2003 NEMA Standards Publication TS-2 Traffic Signal Controller Assemblies.

3.0 TERMINOLOGY. Definitions for terms and abbreviations shall be in accordance with the Department's Standard Specifications, Section 101 and NEMA TS-2 Section 1.

4.0 SIGNIFICANCE AND USE. This ITM is used to evaluate, approve, maintain approval, and remove from the approval listing of wireless vehicle detection systems which is placed on the Department's List of Approved Traffic Controller Equipment. Each model of WVDS will be bench tested and field tested separately.

5.0 APPARATUS. A fully functional instrumented intersection, with detector data output logging and live video overlay capabilities

6.0 SAMPLING. The manufacturer shall furnish, at no cost to the Department, one randomly selected production-run wireless vehicle detection system of each model for bench testing and field testing. The model shall include all components and purpose-built cables and connectors necessary for operation.

The wireless vehicle detection system shall consist of all electronic equipment, in-pavement sensors, receiver/processors, repeaters, mounting hardware, cables, and power supplies.

7.0 PROCEDURE. The Department will evaluate the performance of individual vehicle detectors upon successful completion of all other requirements specific to the vehicle detector being tested.

8.0 SUBMITTAL REVIEW. The documentation will be reviewed for usability of the WVDS with Department approved NEMA TS-2 traffic controller assemblies. The documentation will be reviewed for product compliance with the MUTCD and the Department specifications. The manufacturer's recommended schedule and extent of maintenance will be reviewed for acceptability.

9.0 BENCH TESTING. The WVDS will be bench tested for compatibility with all NEMA TS-2 signal controller assemblies used by the Department. The WVDS will be verified for full NEMA TS-2 functionality and full manufacturer's claimed optional functionality.

10.0 FIELD TESTING. Field testing of the WVDS shall be in accordance with ITM 934.

11.0 REPORT. A final report will include the notations and findings from the electronic bench test and field testing results and documentation.

12.0 APPROVAL LIST.

12.1 Approval of a Wireless Vehicle Detection System. The WVDS model may be placed on the approval list when the following conditions are met:

12.1.1 A potential net benefit to the Department is realized by inclusion of the item on the list.

12.1.2 The bench and field testing are completed with satisfactory results.

12.1.3 The required documentation is submitted.

12.1.4 No excessive amount of routine or periodic maintenance is required.

12.1.5 No failure with any of the different types of NEMA TS-2 traffic controller assemblies or individual traffic control components used by the Department.

12.1.6 The wireless vehicle detection system shall include:

a) All manuals & documents
b) All required software to realize full potential of the WVDS.

12.1.7 Only minimal maintenance operations were necessary during the field testing.

12.2 Maintaining Approval. Maintaining approval of the WVDS shall be in accordance with ITM 934.

12.3 Removal from Approval List. Removal from the approval list shall be in accordance with ITM 934.

INDIANA DEPARTMENT OF TRANSPORTATION
DIVISION OF OPERATIONS SUPPORT
PRELIMINARY INFORMATION FOR PRODUCT MATERIAL EVALUATION

Trade Name _____ Date _____

Manufacturer _____ Patented? Yes _____ No _____ Applied for _____

Address _____
Street No (P. O. Box) City State Zip Code

Representative _____ Phone No ( )_____

Address _____
Street No (P. O. Box) City State Zip Code

Product Information _____

_____

Materials Composition _____

_____

_____

** Is this product considered HAZARDOUS MATERIAL when disposing of non-used or surplus materials? Yes _____ No _____

** What is the shelf life of this material? Years _____Months _____N/A_____

Recommended Use-Primary _____

_____

_____

Recommended Use-Alternate _____

_____

_____

Advantages and/or Benefits _____

_____

_____

** Materials specifications by manufacturer, installation/operation manual, maintenance manual, literature, test results, guarantee, hazardous material data sheets, plan, picture or sketch must be submitted with this form. In the case of electronic devices the schematic diagram, parts list, and parts layout diagram must be submitted for each printed circuit board within the device.

Meets following specifications:

AASHTO _____ _____

ASTM _____ _____

OTHER _____

Use by highway authorities or similar agencies in other states.

Agency	Years Used	Remarks
_____	_____	_____
_____	_____	_____
_____	_____	_____

** Has product ever been evaluated by and rejected for use by a governmental agency?

Yes _____ No _____ If yes, by what agency and for what reason?

_____

_____

Will demonstration be provided? Yes _____ No _____

Availability: Seasonal _____ Nonseasonal _____ Delivery at site _____

After receipt of order, are quantities limited? Yes _____ No _____

** Will FREE SAMPLES be furnished? Yes _____ No _____
If yes, Quantity Furnished _____

** If the sample is salvageable, do you desire to have it returned Yes _____ No _____

(Desired return of salvageable samples will be at the supplier's expense.)
(The manufacturer agrees upon the return of salvageable samples, such samples may be damaged or non-operable. Normal care will be taken that the samples, when returned, are in operable condition; INDOT, however, does not guarantee that the returned samples are operable.)

Will laboratory analysis be furnished? Yes _____ No _____

** Approximate cost _____ Royalty Cost _____

When was the product introduced to the market? _____

This product is an alternate for what product? _____

_____

_____

Will warranty be provided? Yes _____ No _____ If yes, for how long? _____

Background of company, including principal products _____

_____

_____

_____

What offices of the Indiana Department of Transportation have been contacted?

_____

Additional Information _____

_____

_____

_____

(Attach additional sheets as necessary)

Person furnishing information _____
Name Title

Address _____
Street No (P. O. Box) City State Zip Code

Items marked ** MUST BE RESPONDED TO or further consideration may not be given for this product.

Please mail this form to: Manager, Office of Traffic Engineering
100 N. Senate Ave., Room N925
Indianapolis, IN 46204-2249

If INDOT elects to evaluate your product/material - traffic signal equipment will be shipped to:

Electronic Technician Supervisor
Indiana Department of Transportation
6400 E. 30th Street
Indianapolis, IN 46219-8222

While all other materials to be evaluated will be shipped to:

Traffic Evaluations Engineer
Indiana Department of Transportation
6400 E. 30th Street
Indianapolis, IN 46219-8222